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ABSTRACT

Financial stress brought about by economic changes in farm communities affects the academic achievement of young adolescents. This effect is mediated by the social support of parents and degree of dissonance in young adolescents relationships with parents. Young adolescents, mothers, and fathers from 105 farm and nonfarm families participated in the study. The degree of financial hardship reported by the adolescents was positively related to their feelings of depression and to the degree of dissonance in their relationships with their parents. Their perceptions of financial hardship was negatively related to the amount of social support they felt from their parents, as well as to their school grade point average controlled for achievement before the farm crisis. Both mothers and fathers reported a significantly greater degree of financial hardship in their families than did their adolescent children, suggesting that they may be protecting their children from this hardship for as long as possible. When the data from the male and female adolescents are examined separately in path models, they indicate that it was primarily the father-son relationship that was affected by financial crisis. (Author/SKW)

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The Effects of Financial Stress on the Academic Achievement of Young Adolescents from Farm and Nonfarm Families

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Paper presented at the Annual Meeting of the
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Running head: EFFECTS OF FINANCIAL STRESS ON ACADEMIC ACHIEVEMENT

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Abstract

This study investigated whether financial stress brought about by economic changes in farm communities had an effect on academic achievement of young adolescents. Additionally, whether this effect was mediated by the social support of parents and/or the degree of dissonance in relationships with parents was also studied. Young adolescents, mothers and fathers from 105 farm and nonfarm families participated. The degree of financial hardship reported by the adolescents was positively related to their feelings of depression and to the degree of dissonance in their relationships with their parents. Their perceptions of financial hardship were negatively related to the amount of social support they felt from their parents, as well as their school gradepoint average (GPA) controlled for pre-farm-crisis achievement. Both mothers and fathers reported a significantly greater degree of financial hardship in their families than did their adolescent children, suggesting that they may be protecting their children from this hardship for as long as possible. When the data from the male and female adolescents were examined separately in path models, they indicated that it was primarily the father-son relationship that was affected by financial crisis.

Across the nation, farm families are experiencing a level of economic hardship perhaps not seen since the era of the Great Depression of the 1930s. In Iowa, from 1980 to 1985, the value of farmland and the selling price of farm commodities have fallen drastically while the cost of producing farm commodities has remained relatively stable (Iowa Crop and Livestock Reporting Service, 1985). Recent trends indicate that during the next decade as many as one million family farms in the United States will disappear due to financial insolvency (Office of Technology and Assessment, 1986). In 1984, the Iowa Farm and Rural Life Poll (Lasley, 1985) asked 1,900 randomly selected farm operators how the level of stress in their families had changed over the last three years. Thirty-nine percent said the level of stress had increased slightly, while 32 percent reported the stress level had greatly increased in their families. Iowa's economy is strongly dependent on farming and farm-related industries (Iowa Development Commission, 1985); therefore, not only are farm families being influenced economically by this crisis, but also nonfarm families in farming communities.

In contemporary societies, social problems are both reflected by the school system and affected by it (Minuchin & Shapiro, 1983). Family stress has been found to have an effect on children's academic performance and social interactions within the school setting (Bronfenbrenner, 1979; Bronfenbrenner & Crouter, 1983). Schools serve as social situations that receive input not only from individual students, parents, teachers and administrators, but also from state and national government agencies, large institutions and private groups (Sarason & Klaber, 1985). If schools, as social settings are to be responsive to the needs of students whose families may be experiencing stress as a result of the economic changes in the farm sector, it is important to determine: 1) if stress due to economic changes actually exists for students and 2) how and if such

stress has influenced students' functioning within the school setting. The purpose of the present study was to investigate whether financial stress brought about by economic changes in farm communities has an effect on academic achievement. Additionally, whether this effect was mediated by social support of parents and/or degree of dissonance in relationships with parents was also studied.

Method

Subjects

Subjects were mothers, fathers and early adolescent children from 105 families in two rural counties (County A and County B) in the State of Iowa. Sixty-five of the families were from County A and 40 from County B. As requested by the school board in one of the counties, the identity of both will remain anonymous. Each participating family had a child in the sixth, seventh or eighth grade of school. That child was considered the target child for this study. If a family had more than one child in any of these grades, the oldest child was chosen as the target child. There were 29 target children from the sixth grade, 31 from the seventh grade and 45 from the eighth grade. Forty-two of the target children were males and 63 were females.

Both Counties A and B have been affected by the changing economic conditions in the farm sector. In a single year from 1981 to 1982, per capita income in County A fell from $12,108 to $11,391 for an average drop of $817 and in County B, per capita income fell from $9,008 to $8,927 for an average drop of $181 (Iowa Development Commission, 1985). From 1981 to 1984, the average value of an acre of farmland in County A fell from $3,069 per acre to $1,855 per acre while in County B the average value of an acre of farmland fell from $1,059 per acre to $659 per acre (Iowa Crop and Livestock Reporting Service, 1985).

Of the 105 families that participated, 49 reported that they provided the labor and/or management for a farm in the last five years; of these, 25 families still provided the management and labor for this farm at the time of data collection. Thirty-one of the families reported that either the husband or wife was in a farm-related occupation.

In both school systems, students were not given letter grades until seventh grade. The sixth graders in the study were graded on an essentially pass/not pass basis. Because of this, the 29 sixth graders were omitted from analyses where gradepoint average was used as a measure of academic achievement. In analyses involving measures obtained from the target adolescents, mothers and fathers, only data from families where all three of these family members participated were used.

Instrumentation

Demographic information. A questionnaire was constructed to seek information from the parents about their family and how closely the family was financially involved in farming. The questionnaire dealt with how many children and adults were in each family; whether the husband or wife was employed; whether the husband or wife was in a farm-related occupation; whether the family provided the labor or management for a farm and, if so, the economic and ownership conditions of that farm.

Financial hardship. Financial hardship was the main stress variable of interest. Target subjects and each parent were requested to respond to 10 questions on the type and frequency of financial adjustments their family had made in the previous six months. The questionnaire was adapted form the Iowa Farm and Rural Life Poll of 1984 (Lasley, 1985). Coefficient alpha was used as a measure of internal consistency of the items as an assessment of the

reliability of the scale for adolescents (∂=.82), mothers (∂=.92) and fathers (∂=.92).

After determining the internal consistency of the financial hardship scale for adolescents, mothers and fathers, the next question to address was whether or not the three sets of responses on the scale measured a single construct (that is, "overall family perception of financial hardship") or whether it measured a distinct construct for each family member. The corrected-for-attenuation correlations (see Strahan, 1983) suggested that financial hardship reports from mothers and fathers measured a single construct (r=.95), while adolescents' perceptions of family financial hardship measured a distinct construct (mothers adolescents, r=.46; fathers-adolescents, r=.47).

Social support and dissonant relationships. Social support and dissonant relationships between adolescents and their parents were assessed through self-reports by the adolescents using the Furman and Burhmester (1985) Networks of Relationships Inventory (NRI). This scale was used concurrently by Lempers, Clark-Lempers and Simons (in press) with 688 ninth through twelfth graders in a farming community in Iowa (different from both Counties A and B in the present study). They submitted the 33-item scales from each type of relationship (that is, mother-adolescent, father-adolescent) to factor analysis and derived two factors for each type of relationship. The first factor had high loading items (24 items that loaded .50 or higher that indicated positive support, while the second had high loading items (6 items that loaded .50 or higher) that indicated the degree of dissonance in a relationship. Three items did not load highly on either factor for either type of relationship, but also did not effectively for an interpretable third factor; these items were omitted from all analyses. In the present study, alpha coefficients were calculated on the 24 items Lempers, Clark-Lempers and Simons found to show a positive social

support for each support source (mother, ∂=.96; father, ∂=.97); likewise for the six items they found to indicate degree of dissonance (mother, ∂=.91; father, ∂=.87). Corrected-for-attenuation correlations among scales indicated that each type of relationship seemed to be a unique form of dissonance (r=.40), but that there may be a single parental social support construct (r=.82).

Academic performance. Academic performance was measured by actual school grades and performance on the Iowa Test of Basic Skills (ITBS). School grades were available for seventh and eighth graders only. In order to calculate an equivalent gradepoint average (GPA) across county school systems, only grades on courses that were mandatory in both county systems were used (science, math, language arts and social studies). An average for the four courses was then calculated.

Anastasi (1976, p. 399) states:

> It should be obvious that all psychological tests measure the individual's current behavior, which inevitably reflects influence of prior learning.

However, it seems to be common practice to use a student's gradepoint average as a criterion variable without controlling for this prior influence (for example, Fontana & Dovidio, 1984; Forehand, Long, Brody & Fauber, 1986). Of special interest in this study is the portion of academic achievement that occurred after the beginning of the drastic decline in the farm economy in Iowa (approximately 1981). Since the ITBS has been shown to be a successful predictor of academic achievement (Peterson, 1983) and scores are readily available from school records, the ITBS standardized (state norms) composite scores collected in the fall of 1981 were used to control for prior academic achievement. This was accomplished by regressing GPA on the 1981 ITBS

composite scores and outputting the residuals. This "residualized GPA" was used as a measure of academic achievement.

Constructing theoretical path analytic models

Path analytic models provide a method of theory-testing using least squares regression techniques. In essence, the procedure is simply a way of evaluating relationships among variables when theory provides insight into the ordering of the variables into a model (Kenny, 1979). This method assumes that the causal relationships among variables in the model are linear, that there is no reciprocal causation between any two variables and that there is no correlation among errors (Pedhazur, 1982).

If the assumptions of path analysis are reasonably met, path coefficients are obtained using ordinary least squares regression. Path coefficients can be obtained from standardized or unstandardized coefficients. Kim and Ferree (1981) discuss at length the advantages and disadvantages of using standardized coefficients. The main limitation of standardization is that all of the variables are standardized using "groups specific standards" (Kim & Ferree, 1981, p. 22). This limitation is especially problematic when more that one group is involved in a study, where the decision about whether the standardization should occur with respect to each group separately or across both groups becomes troublesome. Additionally, when scales possess a meaningful metric, this meaningfulness becomes lost with standardization, obscuring the underlying causal law (Duncan, 1975). However, most psychological measures, such as those in the present study, have no clear metric, thus, the linear transformation used to change the raw scores into standard scores provides scores that are as meaningful as the original ones when not comparing across groups (Kim & Ferree, 1981). Since standardization has the effect of putting all variables in a model on the same standard scale, it better

allows for the comparison of effects of different independent variables within a model.

Previous research (Elder, Caspi & Downey, 1985; Hetherington, 1979) suggests that there may be structural differences between male and female children, as well as mothers and fathers in models involving stress from financial hardship and parenting variables; therefore, in this study, separate models were constructed for all possible parent-child pairings. Unstandardized path coefficients are especially useful in comparing across these types of models, but the standardized coefficients are useful in comparing effects within models. In light of the suggestions of several noted researchers (Kenny, 1979; Kim & Ferree, 1981), both standardized and unstandardized coefficients were reported in this study.

When using causal modeling, it is important to keep in mind that more than one theoretical model may fit the data equally well (Bentler, 1980). Because of this, the need for proposing models a priori that are based on strong theoretical grounds is stressed. Even so, the most that can be said of a good fitting model that predicts a substantial portion of the variance among the variables is that it is a plausible way of representing the relationships among variables.

Procedures

Superintendents of school districts in County A and County B were contacted by both letter and telephone in March of 1986. The study was briefly described to them and appointments were made to meet with each superintendent and other members of their administrations that would be involved. Meetings were held in early April. Administrators reviewed all instruments and were given detailed information about how the study was to be conducted. Both school systems gave permission for students in their district to

participate in the study. One district required that the identity of the schools in their system be kept confidential.

All sixth, seventh and eighth grade classes in both school districts were visited in mid-April. The study was explained to all students and they were asked to participate with their parents' permission. Each student was given a packet to take home to his/her parents. Each packet contained: 1) a short letter to the parents describing the study and asking that they and their family participate, 2) a permission form allowing the child to participate and the researcher to have access to their child's school records, 3) a short questionnaire to obtain demographic information about the family, 4) a questionnaire for mothers that included the financial stress scale, 5) a questionnaire for fathers that included the financial stress scale and 6) a pre-postage paid envelope addressed to the researcher to return the parent questionnaires and permission forms. Students were asked to urge their parents to participate and to return the questionnaires and permission forms as soon as possible. After one week, teachers in each grade reminded the students about the study and provided additional packets to students who have misplaced the one given to them earlier by the researcher.

During the first week in May, administrators in each district were mailed lists of students in their schools whose parents had given their permission for them to participate. During that month, additional visits were made to all schools in order for the researcher to administer a set of questionnaires to all participating students. Upon each visit, school administrators were provided with the parental permission forms for each participating student in his or her school for examination purposes. The questionnaires for each student contained a financial hardship scale and the Networks of Relationships Inventory (Furman & Burhmester, 1985). At the completion of the school year,

the researcher returned to each school to obtain academic achievement information from the files of all participating students.

Results

Correlations of reports of financial hardship with family and academic outcome variables are reported in Table 1. Financial hardship as reported by mothers and fathers was found to be positively related to depression in all family members while adolescents' reports of financial hardship were only positively related to their own depression. Additionally, adolescents' reports of financial hardship were also found to be positively related to the amount of dissonance in their relationships with their mothers. Adolescents' reports of financial hardship were found to be negatively related to degree of support from mothers and GPA controlled for pre-farm-crisis achievement (Residual GPA).

Table 1.0 Correlations of reports of financial hardship with family and academic outcome variables

	Degree of Financial Hardship		
	Adolescent	Mother	Father
Support from:			
Mother	-.26*	-.10	-.14
Father	-.20+	-.10	-.12
Dissonance with:			
Mother	.38***	.11	.11
Father	.20+	.04	.07
Residualized GPA	-.30*	-.18	-.22+
Age of Adolescent	-.09	.06	.00
Gender of adolescent (0=male, 1=female)	-.10	-.06	-.18+

+ $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

Table 2 presents correlations of farm-related variables with reports of financial hardship from adolescents, mothers and fathers. Being in a family which provided the labor and management for a farm at some time during the last five years was positively related to reports of financial hardship for mothers as well as for fathers but not for young adolescent children in the study. Among the 49 farm families in the study, these reports of financial hardship and depression from mothers and fathers were also related to whether or not the family was forced to sell their farm or to quit farming due to economic reasons. Again, similar findings were not found for their children.

Table 2 Correlations of farm-related variables with financial hardship[a]

	Farm Family (N=105)	Forced to Sell Farm (N=49)	Forced to Quit Farming (N=49)	Farm Size (N=49)
Financial Hardship				
Adolescent	.11	.05	.11	.01
Mother	.32***	.45*	.56**	-.16
Father	.41***	.58***	.65**	-.05

([a] 0=No, 1=Yes)
$^{+}p < .10$
$^{*}p < .05$
$^{**}p < .01$
$^{***}p < .001$

Tests for differences among means

Differences in means of academic achievement as measured by GPA controlled for pre-farm-crisis achievement. A 2 (financial hardship) x 2 (sex) univariate analysis of variance (ANOVA) was performed to test whether GPA controlled for pre-farm-crisis achievement differed due to the effect of two levels of financial hardship as reported by adolescents (mean-split), sex of

adolescents and the interaction of these two variables. No significant differences were found of the model ($F(3,63)=2.02$, N.S.).

Differences in mean vectors of financial hardship reports due to family type and sex of adolescent. A multivariate two-way analysis of variance model (MANOVA) with interaction was used to test whether there were differences on the vectors of means of financial hardship as reported by adolescents, mothers and fathers due to the effects of family type (i.e., farm versus nonfarm family), sex of adolescent and the interaction of these two variables. Using Wilks' Criterion, no significant interaction effect was found and, therefore, the main effects were investigated. A significant effect was found for family type ($F(3,70)=5.97$, $p < .001$). No significant effect was found due to sex of the adolescent.

The MANOVA was followed by three 2 (farm vs. nonfarm) x 2 (sex of adolescent) ANOVAs with reports of financial hardship from adolescents, mothers and fathers serving as the three dependent variables. On the measure of financial hardship as reported by adolescents, no differences were found for the model ($F(3,71)=1.42$, N.S.). However, using these same independent variables, differences were found for mothers' reports of financial hardship ($F(3,71)=4.54$, $p < .01$, $R^2=.16$) and for fathers' reports of financial hardship ($F(3,71)=7.56$, $p < .001$, $R^2=.24$). Both mothers and fathers from farm families reported higher levels of financial hardship than their nonfarm counterparts. Table 3 gives the breakdown of effects for the mothers' reports of financial hardship and Table 4 gives the breakdown for the fathers' reports. Tests for dependent means were also conducted on the differences between reports of financial hardship from the three family members. No significant differences were found between mothers and fathers. Mothers reported a significantly higher degree of financial hardship that their adolescent children ($t(87)=7.46$,

$p < .0001$), as did fathers ($t(79)=5.64$, $p < .0001$). Table 5 presents means broken down by source of report and family type.

Table 3. Dependent: Mothers' reports of financial hardship

Effect	E Values	p Values
Farm vs. nonfarm	13.06	.0006
Sex of child	.14	N.S.
Farm x sex	.42	N.S.

Table 4. Dependent: Fathers' reports of financial hardship

Effect	E Values	p Values
Farm vs. nonfarm	20.53	.0001
Sex of child	1.90	N.S.
Farm x sex	.24	N.S.

Table 5. Means of financial hardship reports

		Source of Report		
	N	Adolescent	Mother	Father
Farm families	39	3.14	4.64	4.65
Nonfarm families	36	2.70	3.38	3.08

Tests of proposed models

A series of path analyses were conducted to test the hypothesized models for the prediction of academic achievement from financial hardship with either social support from mothers or fathers or amount of dissonance in relationships with mothers and fathers serving as intermediary variables. The ITBS taken in 1981 was found to be a significant predictor of GPA for the 1985-1986 school year for junior high school students, predicting 26% (R=.51) of the variance for males ($F(1,24)=8.26$, $p< .01$) and 41% for females ($F(1,39)=27.59$, $p< .001$). The residuals from these models were subsequently used as measures of academic achievement.

As shown in Figure 1, for the male adolescents in the study, only the path predicting mothers' social support from financial hardship was found to be significant; 27% of the variance in mothers' social support and 6% of the variance in academic achievement as measured by residualized GPA was accounted for.

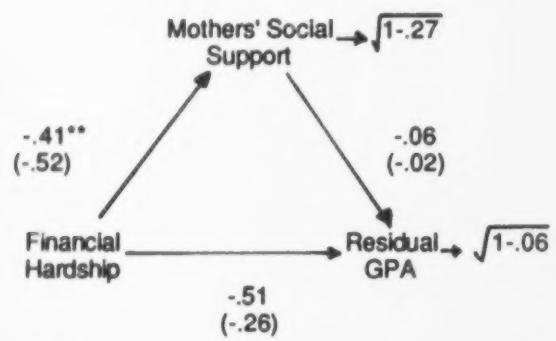


Figure 1. Model predicting academic achievement controlled for pre-farm-crisis achievement from financial hardship with mothers' social support as an intermediary variable (male adolescents (N=24))

Note that for all models, unstandardized path coefficients are given and are followed by standardized coefficients indicated in parentheses.

As shown in Figure 2, the model for female adolescents with mothers' social support as an intermediary, none of the paths were found to be significant and only 3% of the variance in mothers' social support and 4% in academic achievement measured by residualized GPA was accounted for in the model. The model in Figure 2 is identical to the model in Figure 1 in the way the variables are arranged, but was performed on data from the female adolescents in the study.

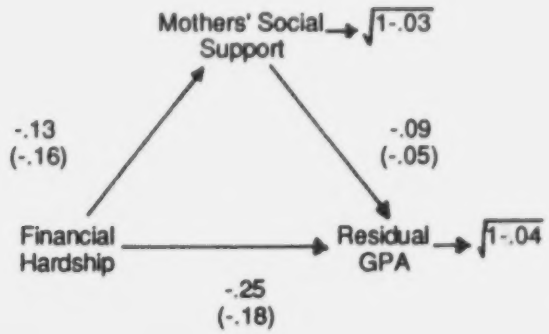


Figure 2. Model predicting academic achievement controlled for pre-farm-crisis achievement from financial hardship with mothers' social support as an intermediary variable (female adolescents (N=36))

For males, the model shown in Figure 3, the path predicting fathers' social support from financial hardship was found to be significant. Twenty-seven percent of the variance in fathers' social support was accounted for in the model, as was 13% of the variance in academic achievement as measured by GPA controlled for pre-farm-crisis achievement.

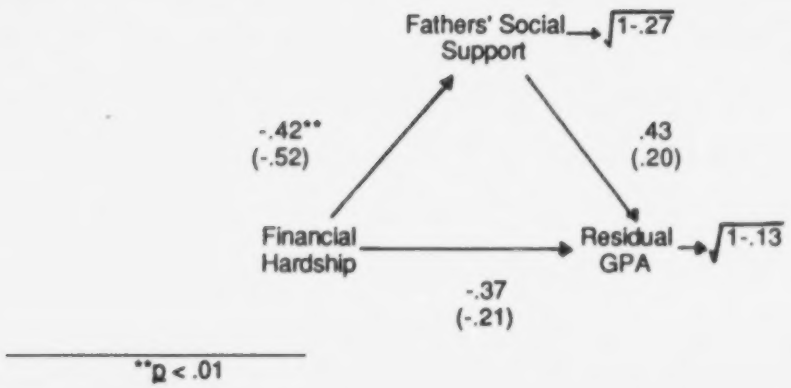


Figure 3. Model predicting academic achievement controlled for pre-farm-crisis achievement from financial hardship with fathers' social support as an intermediary variable (male adolescents (N=22))

The model in Figure 4 is identical to the model in Figure 3, but was performed on data from the female adolescents in the study. None of the paths were found to be significant and only 1% of the variance in fathers' social support and 4% of the variance in the residualized GPA was accounted for in the model.

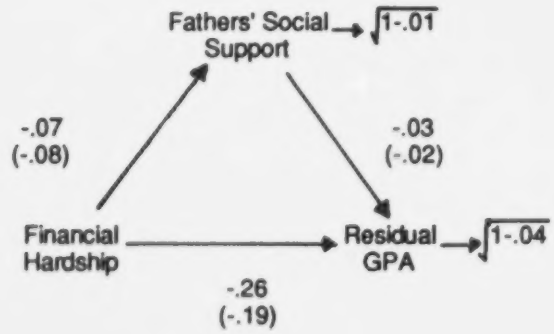
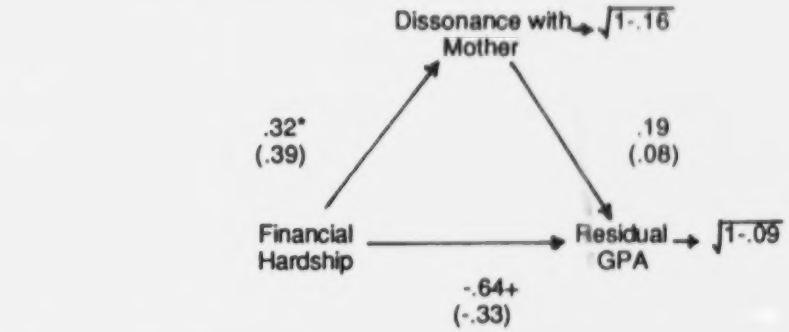


Figure 4. Model predicting academic achievement controlled for pre-farm-crisis achievement from financial hardship with fathers' social support as an intermediary variable (female adolescents (N=36))

As shown in Figure 5, the path predicting degree of dissonance in the mother-son relationship from financial hardship was found to be significant, as was the path between academic achievement as measured by GPA controlled

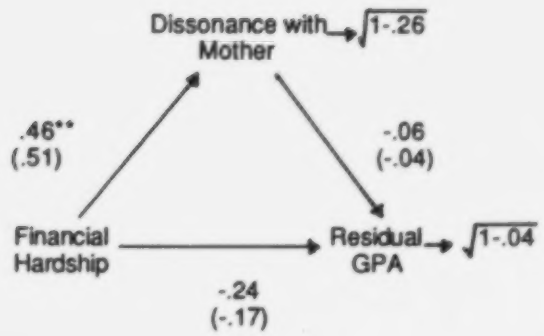
for pre-farm-crisis academic achievement and financial hardship; however, the latter path was only moderately significant. The model accounted for 16% of the variance in degree of dissonance in the mother-son relationship and 9% of the variance in academic achievement.



+p < .10
*p < .05

Figure 5. Model predicting academic achievement controlled for pre-farm-crisis achievement from financial hardship with dissonance with mother as an intermediary variable (male adolescents (N=26))

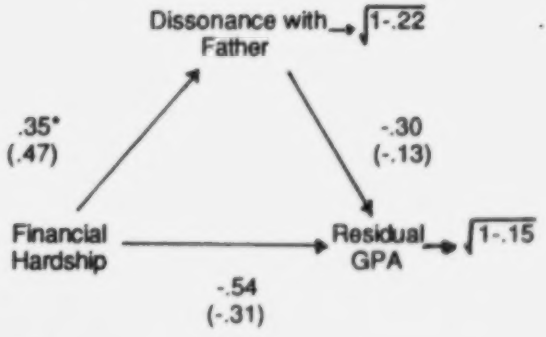
The model depicted in Figure 6 is identical to the model in Figure 5, except that the analysis was performed on data from the female adolescents in the study. Only the path predicting the degree of dissonance in the mother-daughter relationship from financial hardship was found to be significant. The model accounted for 26% of the variance in the degree of dissonance in the mother-daughter relationship and 4% of the females' academic achievement.



**p < .01

Figure 6. Model predicting academic achievement controlled for pre-farm-crisis achievement from financial hardship with dissonance with mother as an intermediary variable (female adolescents (N=37))

Twenty-two percent of the variance in degree of dissonance in males' relationships with their fathers and 15% of their academic achievement were accounted for in the model presented in Figure 7. However, only the path predicting degree of dissonance in the father-son relationship from financial hardship was found to be significant.



*p < .05

Figure 7. Model predicting academic achievement controlled for pre-farm-crisis achievement from financial hardship with dissonance with father as an intermediary variable (male adolescents (N=24))

The model depicted in Figure 8 is identical to the model in Figure 7, except that the analysis was performed on data from female adolescents in the

study. None of the paths were found to be significant and only 0.1% of the variance in degree of dissonance in the father-daughter relationship and 5% of the variance in females' academic achievement were accounted for in the model.

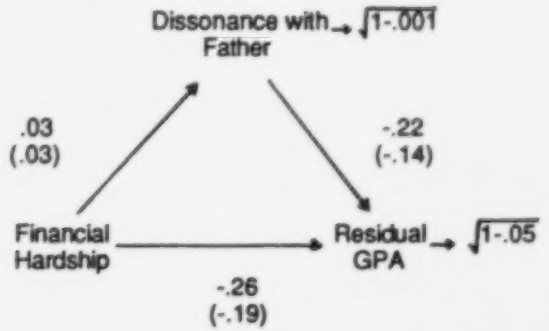


Figure 8. Model predicting academic achievement controlled for pre-farm-crisis achievement from financial hardship with dissonance with father as an intermediary variable (female adolescents (N=37))

Discussion

During a period of historical change, such as the change that is occurring in the farm sector in Iowa and many other states, repercussions are felt among many individuals, families and institutions. In his work with archival data on children of the Great Depression, Elder (1974, 1979, 1984) was able to detect many changes among children and families experiencing a severe loss of income and the onset of financial hardship. In the present study, among families experiencing an increase in financial hardship, many of the findings parallel those of Elder.

Interpretations of correlational findings

Care must be used when interpreting correlations with the variable academic achievement as measured by current GPA controlled for pre-farm-

crisis achievement. Essentially, this is a change or difference score. When subtracting that part of GPA that could be accounted for by an earlier measure, the resulting score is comprised of a greater percentage of error (both systematic and random). While difference scores are problematic due to the inflation of the proportion of error, they are, as Nunnally (1982) points out, often all that is available as a measure which reflects change.

Correlations of reports of financial hardship with family and academic outcome variables. Reports of perceived degree of financial hardship from adolescents, mothers and fathers were correlated with variables related to the family and to adolescents' academic achievement scores. Adolescents who reported greater levels of financial hardship also tended to perceive that both of their parents were less supportive and that relationships with them were more dissonant. These findings are in keeping with those of Elder (1974, 1979, 1984) that economic distress had an adverse influence on the relationship between children and their parents. It should be noted, however, that all of these measures were based on perceptions. It may be, as Kessler and his colleagues (1985) suggest, that negative feelings tend to generalize to all perceptually bound measures. Significant correlations were also found between adolescents' academic achievement and their perceptions of their families' financial hardship.

Correlations of social relationship variables with adolescents' school outcome variables. The degree of social support and of dissonance in the relationships that adolescents had with their mothers and fathers were investigated to determine if there was a relationship between these variables and academic achievement. Adolescents with a lower academic achievement reported having a more dissonant relationship with both of their parents. It may be that parents who were concerned about their children's school grades tend

to vigorously express this concern. It may also be, however, that the stress of financial hardship causes parents to be more punishing or inconsistent in their discipline, causing their children to be more distracted in school and, therefore to receive lower grades.

Correlations of farm-related variables with financial hardship. Whether a family was a farm family or a nonfarm family was strongly related to the parents' perceptions of financial hardship. For farm families, whether or not a family was forced to sell their farm was also related to both parents' report of financial hardship. Similar findings were discovered for parents who reported that they had been force to quit farming as an occupation due to financial reasons. These findings were not unexpected; the surprise was the very low correlations that were found among the same variables as perceived by the adolescents in the study. It could be, as one school official hypothesized, that the farm parents were trying to hide the severity of the financial hardship they were perceiving from their children for as long as possible.

Interpretation of findings for differences among means

Differences in means of academic achievement as measured by GPA controlled for pre-farm-crisis achievement. Findings by Elder (1974, 1979, 1984) have suggested that educational outcomes for male children may be more adversely affected than female children by the upheaval that takes place in families due to the onset of financial hardship. Therefore, an interaction effect for level of financial hardship as perceived by adolescents and sex adolescents was expected on the dependent variable of academic achievement. However, a significant interaction effect was not found, nor were the main effects of level of financial hardship and sex of adolescent.

Differences in reports of financial hardship by adolescents, mothers and fathers in farm and nonfarm families. Mothers and fathers from farm families reported a higher degree of financial hardship than did those from nonfarm families, but whether an adolescent was from a farm family did not statistically affect his/her report of his/her family's degree of financial hardship. Both mothers and fathers reported significantly higher degrees of financial hardship than did their children. It appears that parents from the rural communities involved in this study try to protect their children for as long as possible from the hardship their families are experiencing.

Evaluating the path models

Patterson (1982, 1983, 1986) has suggested that stressful events such as the onset of financial hardship may severely impact children by disrupting the parenting skills of their parents. Additionally, in his study of children of the Great Depression, Elder (Elder, 1974, 1979, 1984; Elder, Caspi & Downey, 1985) found that a heavy loss of income increased the likelihood of family discord, disorganization and demoralization. Moreover, these same studies by Elder and his associates, as well as by Hetherington and her colleagues (Hetherington, 1979, 1981, 1986; Hetherington, Camara & Featherman, 1983; Hetherington, Cox & Cox, 1982) on the effects of family stress cue to the divorce of parents, have all suggested that the strains experienced by families have different effects on sons and daughters, mothers and fathers. A series of path analytic models were tested with samples consisting of the for possible relationship combinations, that is, mother-daughter, mother-son, father-daughter, father-son. Two models were tested for each type of relationship; one with social support by the respective parent as an intermediary variable, and one with dissonance in the relationship as an intermediary variable.

The only path that was found to be significant for any of the models concerning the relationships of daughters with their parents was in the model involving the degree of dissonance in the mother-daughter relationship as a moderating variable between degree of financial hardship and academic achievement. For adolescent females, an increase in financial hardship was predictive of the degree of dissonance they perceived in their relationships with their mothers.

For the models involving mother-son relationships, financial hardship was directly predictive of mothers' social support. Financial hardship was also found to be predictive of the degree of dissonance in the relationship and, to a lesser extent, sons' academic achievement.

Although not all of the paths were significant in the models involving father-son relationships, both of these models accounted for a meaningful proportion off the variance in the endogenous variables. Additionally, all of the signs of all of the path coefficients were in the hypothesized direction. The models do support the hypothesis that financial hardship leads to a disruption of the father-son relationship. Moreover, although the support is tenuous, the models do suggest that financial hardship may be having both a direct effect and an indirect effect on the sons' academic achievement as mediated by their relationship with their fathers. Note that 13% of the variance was accounted for in the sons' academic achievement controlled for pre-farm-crisis in the model (Figure 3) where fathers' social support was used as a mediating variable. Fifteen percent of the variance in the same measure of sons' achievement was accounted for in the model (Figure 7) where the degree of dissonance in the father-son relationship was used as the mediating variable.

Striking differences can be noted between parallels models of the father-son and father-daughter relationships. While financial hardship predicted 27%

of the variance in fathers' social support for sons, it only predicted 1% for the daughters (Figure 3 and Figure 4). Virtually none of the variance in the degree of dissonance in the father-daughter relationship was accounted for in the model depicted in Figure 8, while the parallel model for fathers and sons (Figure 7) showed that 22% of the variance in the degree on dissonance in the father-son relationship was accounted for by the degree of financial hardship. Differences between adolescent sons and daughters in the amount of variance accounted for in the model for academic achievement can also be noted.

In his research with children of the Great Depression, Elder (Elder, 1974, 1979, 1984; Elder, et al., 1985) found that economic distress in the family shifted the power within the family away from the father and toward the mother. Additionally he found that fathers diminished in attractiveness as role models for their sons. Sons from financially depressed families were less likely to be goal-directed or to attend college and, for those who did attend college, were more likely not to graduate. The model tested in the present study also indicates that it is primarily the father-son relationship that was affected by financial crisis. Patterson (1982, 1983) has hypothesized that the effect of stressful life events (such as the onset of financial hardship) on developmental outcomes, including academic achievement, is further increased by the mediating effect of an increase in disruption of parenting skills. The models tested in this study tend to support this hypothesis for male adolescents, but not for female adolescents.

Implications for further study

Economic upheaval continues to occur in the farm sector of states such as Iowa (Jolly, 1986; Muhm, 1985). A 1985 poll by the Farm Journal showed that 46% of Midwestern farmers are confronted with a debt-to-asset ratio of 40% or more. Recent trends indicate that during the next decade as many as one

million family farms will disappear (Office of Technology Assessment, 1986). The present study has shown that the economic upheaval that is occurring is having an effect on adolescents and their families in rural Iowa. Longitudinal studies are needed to determine if this continuing economic upheaval may be affecting developmental outcomes for children at varying stages of development in different ways.

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